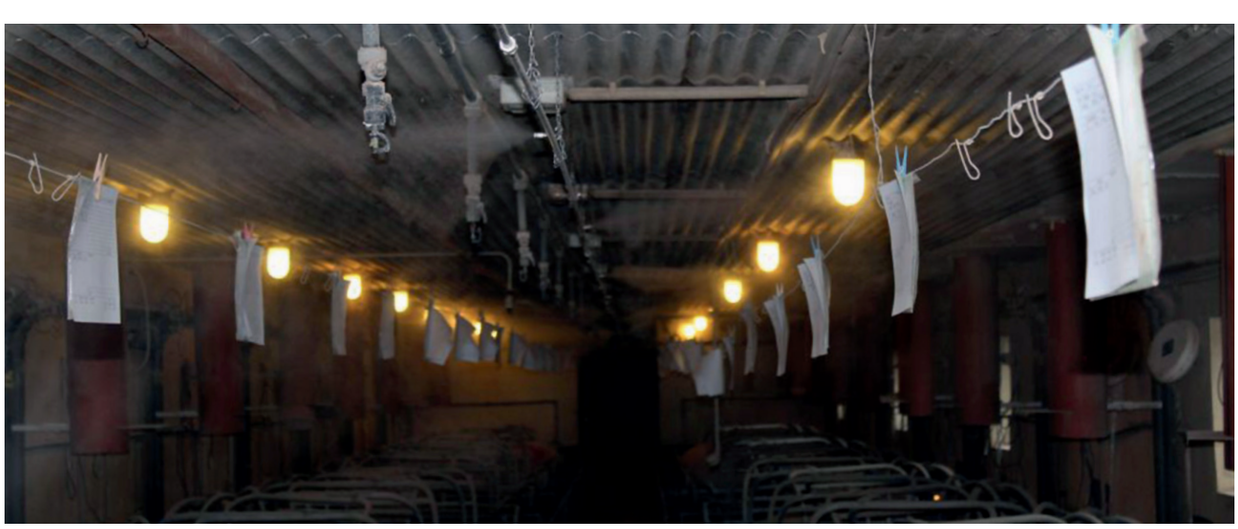
Innovation Project

Food and Agriculture Cluster

nordwest2050

Schweinzucht Lutten GmbH & Co.KG: Climate-Adapted Cooling Systems in Pig-Raising

Since 1969, the pig-raising company Schweinzucht Lutten GmbH & Co.KG has raised piglets for the participating farmers with pig-fattening operations. For this purpose, approximately 1700 mother sows have been held in air-conditioned stalls. After three to four 4 weeks of nursing, the newborn piglets are raised further in their own stalls. In the context of climate change, the problem is that on hot summer days, sows produce less milk, which can endanger the raising of the piglets. Schweinzucht Lutten is therefore testing cooling systems for sow stalls in the context of the nordwest2050 project. The goal of the project is to develop an adapted cooling system that will increase the well-being of the animals.



© Schweinzucht Lutten

The Need for Climate Adaptation

The nordwest2050 vulnerability analysis has shown that due to temperature rises caused by climate change, there will be increased cooling requirements for the industrial and service sectors. Hence, in pig-raising, too, the well-being and output capacity of animals is dependent on the temperature.

Since the milk output of sows in pig-raising is reduced at higher temperatures, it will be necessary to test new cooling systems, such as intake-air cooling or the evaporation-cooling of stalls, in order to better be able to regulate temperatures. If for example, outside air temperature in summer rises above 30°C, sows refuse to feed, and their milk output drops. This in turn affects the well-being of the piglets, and reduces their average weaning weights.

The goal of the project was therefore to identify and bring into operation climate adapted cooling systems which would provide a degree of cooling in the stalls, especially on very hot days, but would at the same time not impair the well-being of the piglets, since newborn piglets need

www.nordwest2050.de

Practical Partner: Norbert Meyer | Schweinezucht Lutten GmbH & Co.KG
Amersbuscher Straße 29 | 49424 Goldenstedt-Lutten | Germany | Phone +49 (0)441 917346 | szlutten@yahoo.de
Science Partner: Prof. Dr. Reinhard Pfriem | Carl von Ossietzky University Oldenburg
Ammerländer Heerstraße 114-118 | 26129 Oldenburg | Germany | Phone +49 (0)441 798- 4184 | reinhard.pfriem@uni-oldenburg.de

a temperature of approx. 30°C. Moreover, the measures would have to be economically viable, and capable of being easily integrated into the farming operation processes.

Implemented Measures

- → **Market analysis on new cooling systems in the area of pig raising, taking climate change into account**
- → **Test runs for various cooling systems**
- → **Evaluation of potentials: Checking the implementation, success monitoring and future development potentials of pig raising in the context of climate change.**

Methodand State of Implementation

First of all, the existing intake-air situation in the stalls was investigated with the aid of a fog generator. On the basis of the results, the intake-air ventilation for the sows in the weaning pens was modified with the aid of KG pipes. In this way, it was possible to reduce the content of harmful gases, and to demonstrably increase the oxygen content available to the sows.

Since the cooling effect on hot days was insufficient, an evaporation-cooling facility was installed in the context of the project, and based on the positive results, was further developed as the project progressed.

Results

Especially at high temperatures with low humidity, air-spray cooling is a very efficient procedure for achieving effective stalled cooling, optimum air humidity and a reduction of particulate matter, so as to improve the well-being of the animals. With the increased well-being of the sows, it was possible to ascertain an increase in their milk output over the course of the project.

Schweinzucht Lutten and the participating pig-raising farmers plan to continue the project even after the end of the nordwest2050 project. They plan to equip additional stalls with the climate-adapted cooling system in the near future.

Transferability

The overall result of the project was discussed with the employees and partners, and evaluated as positive. The veterinarian supervising the stock of animals is also convinced by the results.

Moreover, the project results were communicated to farmers and other veterinarians by way of the regional press, in order to provide them with incentives.

The tested system of the evaporation-cooling facility can be used both in the sow stalls and in the fattening stalls for pigs. In the poultry sector, similar issues arise, and the solution approaches are also similar. Overall, the successful implementation of clean, filtered water is an essential precondition. Ultimately, the goal must be that climate-adapted measures be discussed for the entire value-added chain, and that an understanding for various problem situations in the context of climate adaptation be developed.

nordwest2050 is one of a total of seven projects funded by the Federal Ministry of Education and Research (BMBF) in the context of the KLIMZUG Program (Klimawandel in Regionen zukunftsfähig gestalten – Creating Climate Change-Ready Regions). In 2012 nordwest2050 was awarded as an official project of the United Nations' World Decade on Education for Sustainable Development. The goal of the adaptation research is to develop strategies and measures by means of which regions and industries can be better prepared for life and business under the conditions of climate change. This is on the one hand designed to strengthen future competitiveness, and on the other to promote the development and use of new technologies and procedures for adaptation to climate change.

SPONSORED BY THE
Federal Ministry of Education and Research
KLIMZUG climate change in regions
CARL VON OSSIETZKY universität OLDENBURG